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Chandrashekara H. Raju

Thomas Wischgoll

Wright State University - Main Campus, thomas.wischgoll@wright.edu

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Analysis of large scale image data using out-of-core techniques

Chandrashekara H Raju
Wright State University, Dayton
Thomas Wischgoll
Wright State University, Dayton

Analysis of large scale image data has many applications in the medical and health related fields. The application domain of this field even extends beyond these areas. It is of great importance to analyze image-based datasets by extracting important features to understand the underlying structure of the data for further analysis by the specialist. One of the main challenges researchers are facing is to work with large scale image data which might range from several megabytes to several gigabytes. For example, microCT scans at high resolutions, such as 4-6 μm , can easily consist of up to a few gigabytes in size. The objective of this research is to analyze such large scale image datasets using out-of-core techniques based on memory mapping allowing the software system to process datasets that exceed the amount of main memory present in the computer system.